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VASCULAR DISEASE IN THE YOUNG.

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THAT the arteries are liable to degenerative changes at and after middle life, the effects of which vary from the almost negligible to the severe, is well known; but that similar changes fraught with serious consequences may occur in the young is not so generally recognised. The oft-quoted saying that "a man is as old as his arteries," although in the main true, needs modification, for some men have tortuous arteries at 50 and yet continue an active life to old age, while a like condition occurring in the young is inimical to normal development and tends seriously to shorten life.

The present writer's interest in the subject of this article was stimulated by his attendance at the special discussion on "Inherited Syphilis" by the Society for the Study of Disease in Children held in 1907 and published in the Reports of the Society for 1908. To this discussion, and to the recently published work on 'Diseases of the Arteries' by Sir Clifford Allbutt, he desires specially to acknowledge his indebtedness.

George Carpenter, in his contribution to the discussion, went over the effects of inherited syphilis on the various organs of the body, including those of the heart and blood-vessels. After reference to

recorded cases of lesions of the myocardium and valves as a result of inherited syphilis in children from six weeks to six months, we are told of cases of extracranial aneurysms in the young collected by Le Boutillier, among which is one of aneurysm of the abdominal aorta in a fœtus of 8 months, and seven cases of aneurysm of the thoracic aorta under 10 years. In many cases the aneurysm was associated with syphilitic arteritis.

Sir Clifford Allbutt ('Dis. of the Arteries, etc.', 1915, i, pp. 170–2) quotes Bourgignon to the effect that arteriosclerosis, formerly regarded as a "normal malady" of old persons, is becoming every day more and more precocious. Von Romberg's youngest case was aged 12 years. In some cases, besides more or less enlargement of the heart and thickening of the arteries, the heart had failed in rhythm, or a systolic murmur appeared at the apex. Several other authors are referred to as having reported juvenile cases from 12 to 14 years due to infections. Hirschfelder had a case of a boy of 6 years ill of acute nephritis and pneumonia following bacillus coli abscess in the buttocks and a bacillus coli cystitis. The blood-pressures were continuously low throughout, yet the accessible arteries became thickened and tortuous. The boy made complete recovery, and the arterial affection passed away. O. Müller noticed palpable arteries in young persons under puberty, in some of whom the left ventricle was hypertrophied and the second aortic sound reinforced. These patients are "bilious," the tongue heavily coated, abdomen tumid, and motions offensive. Under a gentle mercurial and other appropriate remedies the whole trouble clears up and, after a while, the arteries recover their normal quality. Dr. Ainslie Hollis found elevated patches in the aorta of a boy aged 11 years who died of appendicitis. Other cases of adolescence have been recorded. Infection of one kind or another has generally been the cause of these vascular changes; thus Simnitzky, calculating from necropsies, reported 37 cases of altered arteries at ages from 2 to 25; that is 27·5 per cent. of his series of autopsies on children. For the most part there were no direct clinical symptoms. In all of them the changes were of the arteriosclerotic type; and in 18 out of 37 the history of infection was definite and belonged to one or other of the following kinds: Rheumatic fever, diphtheria, scarlet fever, smallpox, pneumococcus, tuberculosis; in all but seven an infection had occurred. Syphilis was not included in the series. A. C. Jordan ('Lancet,' 1903, i, p. 515) recorded a case of fatal aneurysm of the ascending aorta in a boy aged $6\frac{1}{2}$ years. The heart and aorta were otherwise healthy, but a septic focus was observed in one

ear. There was presumably a septic ulcer in the aorta due to septic embolism of the vasa vasorum.

Endarteritis and arteritis, though they occur in infections, are rarely recognised in the young. Cautley ('Dis. of Infants and Children,' 1910, p. 455) quotes cases of calcification of the aorta, peripheral arteries, and valves in young children, some apparently non-syphilitic. He collected 38 cases of aneurysm under 20 years of age; 25 under 13 years. The ratio of boys to girls was 2 to 1. In 31 the site was: Thoracic aorta 6, abdominal aorta 3, iliac 1, femoral 5, popliteal 2, tibial 4, carotid 3, axillary 2, ulnar, dorsalis pedis, cerebral, coronary and innominate 1 each. Calcification of all the peripheral arteries, the iliac like pipe-stems and the aorta hardly affected, have been reported at the age of 6 months (Hale White), calcareous degeneration of the media of the aorta and pulmonary artery at 6 days (Durant), calcification round the mitral orifice at 2 months (Goodhart), calcification of aorta and valves at 2 years (Moutard) and of the temporal artery at 15 months (Hodgson), and a few other cases in older children, all apparently non-syphilitic. Wiesel, of Vienna, thus describes the course of events in arteritis of the infections. About the end of the first week changes become visible in the aorta, carotids, and coronaries, etc., as minute yellowish patches, some presenting calcareous points. Under the microscope these changes are found interspersed in the arterial tree and peripheral vessels. The first change is an infiltration in the media and vacuolation of the muscular layer; then the elastic fibres break up and the muscular coat undergoes necrosis. The most important etiological factor in arterial degeneration is syphilis, congenital and acquired. It was the base of the majority of cases collected or reported by Lévy-Frankel ('Arch. des mal. du cœur,' 1912, v, p. 625), although rheumatism, scarlatina, and typhoid fever had their victims.

The following four cases were published in vol. viii of the Reports of the Society for the Study of Disease in Children along with other cases of congenital syphilis, and in the British Journal of Children's Diseases, 1908:

Case 1 (George Carpenter).

A boy, aged 5 years, was brought by his mother to the Evelina Hospital on June the 10th, 1895. The labour was a difficult one, and he was born with snuffles. Six weeks before his birth his mother was laid up with "influenza and pleurisy." There had been five children of the marriage, one of whom had died from "inflammation of the brain" at 3 years. All the children had "snuffles" at birth, and "some of them bad rashes." There had been no miscarriages or still-born children. There was a

history of rheumatic fever in both parents, and phthisis on his mother's side. He was a badly nourished, ill-developed child, with a pallid face, oral cyanosis, and loud and laboured breathing. On examination there was found enlargement and tortuosity of the arteries about the scapular and abdominal regions. In the armpits the subscapular and long thoracic arteries were thick, tortuous, and pulsating. The pulsation could be distinctly seen, and the arteries were very hard. A thick pulsating vessel could be felt crossing the subclavian triangle on both sides. This appeared to be the transverse cervical artery. . . . The axillary arteries felt enlarged and hard on both sides, and they were decidedly tortuous. The brachial arteries felt like whip-cord; pulsation was well marked in them, and they were slightly tortuous. The radials did not appear to be thickened. A feeble pulse at the wrist was detected in both radial and ulnar arteries. The superior epigastric and superficial epigastric arteries could be seen pulsating and felt beneath the skin. The former was enlarged and tortuous, more so on the left side. The femoral arteries were small, felt like rigid cords, and very feeble pulsation could be detected in both of them. Feeble pulsation could be felt in the anterior and posterior tibial arteries. The abdominal aorta could be felt feebly pulsating through the abdominal wall. . . . The deep epigastric arteries could be grasped bimanually, and were found to be enlarged and tortuous. . . . A collection of enlarged and tortuous vessels were detected in the pelvis, especially in the neighbourhood of the sacro-sciatic notch, feeling like a collection of worms on either side. Thick vessels were also found coursing along the posterior wall of the rectum. Microscopical examination of one of the superficial arteries of the abdomen showed it to be apparently healthy, the thickening being due to well-nigh empty and contracted arteries. *Heart.*—Cardiac dulness was not extended on the right. The sound was natural at the apex, but basic systolic bruits were audible on both sides. The murmur was more audible on the right side. The liver and spleen were both enlarged. *Osseous system.*—The parietal bones showed bossing. *Skin.*—There were linear scars at the left angle of the mouth and two small circular scars on the right buttock near the anus. *Fundus oculi.*—Tubercles were found on the choroid. The boy was taken home and escaped further observation.

I consider Dr. Carpenter's opinion that this was a case of congenital syphilis, and that the state of the arteries was caused by that disease, is justified.

In Case 2, reported by Charles W. Chapman, granular kidney was an additional effect of the inherited disease on the arteries.

A girl, aged 15 years, was admitted into the Hospital for Diseases of the Heart on October the 15th, 1905. She had always been delicate, but her parents did not trouble about her health until three weeks previously, when advice was sought on account of extreme difficulty in breathing, and swelling of the feet and legs.

Previous history.—Snuffles as a baby, pertussis at one year, and pleurisy at twelve years.

Family history.—Both parents were living and in fair health. An uncle on the father's side died of phthisis. The mother had had two children born at term, of which the patient was one, and the other died of marasmus at 8 months. There were four miscarriages.

Present condition.—The child's development was that of one six years her junior, while her face had an aged aspect. The nose was much depressed, and had the appearance of that seen in old syphilitics. The patient complained of severe asthmatic attacks which were worse at night, palpitation and general weakness.

On examination the face was pale, there was puffiness under the eyes, and there was

visible carotid pulsation. The cardiac dulness began at the lower part of the second space; the apex was in the sixth space, nipple line; the lateral dulness was from the mid-sternal line to 4 c.m. external to the left nipple line. The impulse was heaving at the apex, while at the base a tick-tack sensation was felt on palpation; the action was cantering in character. No thrill or murmur could be detected, but the aortic second sound was at times accentuated. Pulse 104, hard, small, and regular; the radial arteries were hard, and rolled under the finger, the brachial and carotid arteries were thickened. There were a few crepitations at the base of the left lung, back and front. The liver was down to the umbilicus. Urine sp gr. 1010, contained albumin 2½ per cent., a fair number of coarsely granular casts so broad as to suggest an origin in tubules denuded of epithelium. There were a few renal cells and red blood discs.

The first three months the patient's condition materially improved, but on December the 24th she vomited 8 oz. of blood. By January the 14th the respiration had become 40 to the minute without any definite change in the lungs. The percentage of albumin increased, until by May it had reached 10 per cent. The dyspnœa was relieved by nitro-glycerine and dry cupping over the loins. On May the 19th there were convulsions, and on the 31st the patient died.

At the post-mortem examination on the following day the heart, especially the left ventricle, was found to be enlarged and the cavities dilated; it weighed 12 oz.; the muscle was pale, and the valves competent. There was no atheroma. The liver weighed 38 oz. and was pale; the spleen weighed 6 oz. Both kidneys were markedly granular; the right weighed 2 oz., the left 1½ oz. The arteries were generally thickened. There was no evidence of the alleged pleurisy.

That this was a case of syphilitic endarteritis and nephritis there can, I think, be no doubt. There was a strong history of syphilis in the mother, while the facies and retarded development in the patient pointed to inherited taint. It would appear that in the second case the disease affected the skin and nasal bones in infancy, while the vascular system fell a prey to the infection at a later period of life.

Case 3.—A case of syphilitic cortical sclerosis in an infant aged 5½ months (George Carpenter).

A girl, aged 5½ months, was admitted at the Evelina Hospital in February, 1903. Her mother had had one other child, which was born dead. The mother's hair came off afterwards. The infant was healthy at birth with the exception of its eyes, "which appeared to be crossed," it had "snuffles" at a month, and was unable to suck. Convulsions began by a sudden movement of the left arm. The movements spread to the right arm and then to the legs. There was a macular eruption on the buttocks. The face was flushed, the respiration 70 to the minute, and grunting, the nose depressed, and the eyes moved in every direction. The head was retracted, and all the limbs stiff. The fingers were flexed into the palms, and the thumbs flexed and adducted. The arms were generally flexed and adducted, the legs flexed on the thighs, and the thighs on the abdomen. There were patches of choroidal atrophy in both fundi.

Abbreviated record of post-mortem examination.—There was atrophy of both hemispheres of the brain, with extensive areas of sclerosis. In the cerebral vessels the most striking change was a small celled infiltration of the adventitia. It may here be remarked that in syphilitic arteriosclerosis the adventitia is affected before the intima, and that it is at this stage that treatment may do good.

Case 4.—Mitral stenosis and regurgitation; thrombosis of right cephalic vein.*

A girl, aged 15 years, was admitted into hospital under the present writer's care in May, 1896. She complained of cardiac pain and shortness of breath on exertion, of two months' duration. History: Chorea at thirteen years, which lasted six months. The heart was considerably enlarged in the lateral direction. There was a well-marked thrill at the apex, and a double mitral murmur; the pulmonic second sound was moderately accentuated. Liver little enlarged. Urine sp. gr. 1015, no albumin. The patient steadily improved, and was discharged on July the 8th. On October the 15th she was readmitted with all her previous symptoms greatly aggravated. Temperature, 101·4° F; legs swollen and breath very short. The presystolic murmur was longer and more churning in character than previously. There was imperfect resonance and deficient breathing at both bases of the lungs. There was ascites, and the liver was enlarged nearly to the umbilicus. The patient had been going on well up to October the 19th, when she complained of an aching pain in the right shoulder. The following morning there was considerable swelling of the arm from the wrist to the insertion of the deltoid, the veins were enlarged, and the hand dusky. The radial pulse was less on the affected side. By the following morning the swelling had extended to the supra-clavicular region. By December the 8th the œdema of the arm had entirely gone, as also had the ascites and the œdema of the legs. The patient gradually improved up to January the 28th, when breathing became more difficult. On February the 11th the dyspnœa was urgent, and the expectoration blood-stained. Examination showed a large patch of dulness at the right base, with coarse *râles* on both sides of the chest. On the following day pleuritic rubs were discovered on the left side. The urine was loaded with albumin. On March the 13th the urine was devoid of albumin and the lungs clearing up, and at the expiration of five weeks the patient was sufficiently well to return home. The foregoing brief abstract illustrates (1) severe heart disease after chorea only; (2) attacks of pulmonary apoplexy, patches of pneumonia and pleurisy, probably due to infarcts in the lungs; (3) sudden and severe albuminuria from renal infarct; (4) thrombosis of the cephalic vein; (5) the possibility of a child being able to go through so many complications of valvular disease and recover sufficiently to be able to walk about again.

Diagnosis.—There is generally either an infective disease present or a history of the child having recently gone through one. In rheumatic fever it is in the later stages when aortitis may occur.

In aortitis there is decrease of resonance over the manubrium, and probably a systolic thrill over the aortic area. In percussion, especially with children, the impact of the percussing finger should be light, or the altered sound will escape recognition. Besides which there is a risk of frightening the patient and possibly giving actual pain. In arteritis there is swelling of the affected limb, with pain and tenderness in the course of the inflamed vessel or vessels. When the coronary artery is affected nutrition of the myocardium suffers. In the examination for arterial thickening it is not sufficient to palpate the radial or dorsalis pedis vessels, since these smaller vessels may show but little sign of being affected, while marked

* 'Heart Disease in Childhood and Youth,' Charles W. Chapman, p. 67.

thickening and hardening with tortuosity is apparent in the brachial and femoral arteries. This, by the way, is equally true in adults.

Since syphilis is so largely responsible for arterial disease, the possibility of this source of infection being present must always be borne in mind, especially in chronic cases. A history of "snuffles," a rash on the buttocks in early infancy, the presence of linear scars at the angles of the mouth, bossing of the parietal and frontal bones, together with the facies, should excite suspicion of an inherited syphilitic taint, while a history of miscarriages in the mother will support the diagnosis. The Wassermann test, if positive, would be confirmatory; on the other hand, a negative result would not necessarily exclude syphilis. The urine should be examined for albumin and casts in all cases.

Prognosis.—This must depend largely on the virulence and intensity of the infection to which the arteritis is due. In cases where the most probable cause is the absorption of toxins from the intestine, if there are signs of improvement after a mercurial purge, the prognosis is good. It is not uncommon to find a child suffering from chronic poisoning due to persistent over-feeding, or to the ingestion of improper food over a long period. The complexion becomes pale and pasty through the toxæmia, and the pallor is not infrequently attributed to anæmia by the mother, who forthwith doses the patient with ferruginous tonic and codliver oil, which only make matters worse.

Treatment.—This will obviously be chiefly that of the infection causing the arteritis. In acute cases the limb should be fixed, and moist heat applied. In chronic cases treatment will be that required for the organs affected. In those cases where faulty feeding is shown to be the cause by the foul breath, offensive motions, etc., a mild calomel purge followed by rhubarb and sodium bicarb. will generally be followed by a satisfactory result. At the same time the dietetic errors of the past must not be repeated. In chronic cases the condition of the urine should be watched from time to time, and the child should be well protected against a chill if the kidneys become affected. In syphilitic cases the treatment appropriate to that disease should be followed and the diet nutritious, excess in nitrogenous food being avoided. The present writer has used a colloidal form of iodine such as iodex rubbed over the sternum in cases of aortitis with benefit.

THE COMMON SPEECH DISORDERS OF CHILDHOOD.

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The common disorders of speech in childhood may be divided into the essential and the accidental. The latter may be briefly dismissed. They consist of cases of indistinctness of various degrees of importance; some are trivial, although troublesome to deal with, such as indistinctness from hoarseness, from a habit of mouthing the words, or from muttering; others are due to extrinsic diseases, such as blockage of the posterior nares by adenoids, temporary paralysis of soft palate, cleft palate or other malformation of mouth or teeth, tumour of tongue, etc. With these accidental disorders may perhaps be classed the indistinctness or peculiar tone of speech due to defective guidance of the ear in deaf children, though the ear is, strictly speaking, an essential factor in speech production.

The essential speech disorders are sometimes divided into (1) *defective or imperfect articulation*, and (2) *stammering* (with some allied conditions). The terms are not altogether felicitous, for articulation is often very defective both in stammerers and in children suffering from the accidental disorders of speech. The term defective articulation must therefore be strictly defined.

It denotes that kind of faulty enunciation which is characteristic of the babbling of very young children. These faults, which are universal at age 2–4, are apt to persist into, or even beyond, school life, under two types; they may persist *en masse*, and the condition is then called *idioglossia*, or they may persist in respect to particular sounds only, and it is then known as *lisping*.

The proportions in which these various disorders occur are of practical interest. They have been noted in Staffordshire for several years at the routine inspections of children of different age periods. We may take the averages of the successive years 1909–12 as representative. The numbers examined each year were about 20,000, boys and girls in approximately equal proportions. It is true that only children of 5–6, 8–9 and the leavers, 12–14, were examined,* but for reasons too lengthy to state now it may be accepted that the percentages obtained from the above selected ages are fairly representative of the whole. The average proportions are as follows:

* In 1912 are included a few children of other age periods.

Accidental indistinctness	-	6 cases per	1000	children.
Defective articulation (*i. e.* lisping and idioglossia)	-	8 „	„	„
Stammering - - -		4 „	„	„

Thus the total number of common defects of speech of all sorts is about 1·8 per cent. of school children. This is about the percentage in which organic heart disease occurs in Staffordshire children. Stammering occurs in 0·4 per cent. of children, or in about the same proportion of cases as mental defect.

The nature of the essential speech disorders, lisping, idioglossia, and stammering, can only be understood in the light of a theory of speech. Speech is a flow of modulated sound made up of primitive instinctive noises combined into artificial or conventional sequences, and used for the expression of ideas and emotions. Thus there are three stages in the mechanism of speech, (1) the primitive instinctive noises, (2) the combination of these into sequences or words, and (3) the use of words for expression. These three stages are served by nervous centres and associations which are successively less and less primitive and fundamental in the same order.

The primitive instinctive noises begin in the earliest days of life as cries, which are usually a reaction to something unpleasant. They consist of the various vowel sounds, oh, ah, ee, oo, ay-ee, etc. About the end of the second month other sounds, equally instinctive, begin to be heard. They have a tendency to be reduplicated, and the uttering of them at this stage is known as lalling (*lallare*, to utter inarticulate sounds). The chief sounds are am, mam-mam, roo, errer, arrar, bab-bab, da-da, gug-gug, ka-ka, together with licking, sucking, cooing, smacking, bubbling, and hissing noises. They generally denote a happy frame of mind.

These primitive cries and lalling sounds require for their production what are really highly complex co-ordinations of neuro-muscular actions, but the important point is that they "come by nature." In this respect they are like standing and walking; they have not to be "learnt" in the same sense as whistling or dancing have to be learnt. They evolve, it is true, through effort and failure, but it is done spontaneously and infallibly, and the nervous mechanisms subserving them, like those involved in standing, etc., are amongst the most fundamental and old-established in the body.

The next step in speech is the combination of these primitive sounds into words. This is an entirely artificial and conventional matter. We need only recall the fact that whereas all children of whatever nationality (so far as I know) lall in the same manner, just

as they all stand and walk alike, the words they make out of lalling sounds differ widely according to national, sectional, and social environment. This word-building has the same relation to lalling that dancing has to walking, and the nerve-centres which control the operation are unquestionably of a higher grade—less primitive and fundamental—than those of lalling; or at least we may say that the mode of action of the centres is less primitive and fundamental. The stage of word-building may begin as early as six months, at which age somewhat precocious infants under the impulse of mimicry have been known to repeat words parrot-like; but it is commonly somewhat later.

The art of combining lalling sounds into clearly enunciated words is one of considerable difficulty. In most cases it takes the best part of two or three years, *i. e.* until about the age of three, to acquire it, during which time "defective articulation" is the natural mode of speech.

The third stage of speech, which is that of speech in relation to thought, begins long before the second stage is perfected. It may be said to have begun when the child can repeat heard words intelligently, even if not yet accurately, and can apply them to things, and this commonly occurs at about 15 months, though it may be earlier. This stage of speech as the exponent of thought touches our highest human attributes, and its operations involve the highest and, biologically speaking, most recently developed of our nervous organs.

Assuming this graduation in three stages to be a true account of speech, cases of defective or imperfect articulation, *i. e.* lisping and idioglossia, may be explained as a failure in the mechanisms of stages 1 and 2, while stammering means a failure in the mechanism of stage 3.

Lisping.

Lisping, an onomatopœic word, has reference primarily to difficulties in the pronunciation of the "s" sound. There are several varieties of the difficulty, but they need not detain us now. "S," however, is not the only difficult sound, and it is convenient in the absence of any commonly accepted generic term to use "lisping" to cover all cases of similar difficulty. Essentially it denotes the inability to shape or organise the various organs—lips, teeth, tongue, expiratory muscles, etc.—so as to produce the elemental sound in question. It is thus a defect of the power of co-ordination. Theoretically speaking, the defect might lie in the nervous centres or

associations proper to the primary and instinctive lalling sounds, or it might be in these subserving the combinations of lalling sounds into words. Probably in most cases it is the latter, for it is frequently demonstrable that the sound only fails in certain combinations; thus a child who apparently is unable to say the "k" sound in "corner," and always calls it "torner," may yet be able to say it in "Jack." It may, however, be admitted that some few cases of incorrigible lisping are to be looked upon as due to faults in the more fundamental mechanisms of lalling.

Lisping may occur over almost any letter, but those most liable to it are s, g, l, r, and the sounds dependent on the soft palate. If one of these letters occurs in a word and a child cannot pronounce it, he must either slur over the gap or put in some other sound. Both expedients are freely used. "Th" generally takes the place of "s"; "t" sounds are put for "k" sounds ("dud boy" for "good boy"); "r" is most frequently slurred over, but "w" "l," or "y" may be substituted for it ("a wainy—lainy—yainy day" for a "rainy day"), etc. Labials and dentals, which are more firmly learnt, presumably because of the greater practice of lips and gums in suckling, are especially apt to be thus used on emergency.

Idioglossia.

Idioglossia is a more serious affair; in it almost every consonantal sound may be blurred, clumsy or unconventional. It amounts to a child having a language of its own, at any rate for the purposes of expression; for children who have idioglossia are commonly able to understand ordinary speech. Reciprocally it is not difficult to understand the various dialects of idioglossia, though it might not be so easy to acquire fluency in speaking them.

To illustrate idioglossia some careful transliterations of the nursery rhyme of Jack Horner may be given; each line was said slowly and distinctly to the child, and he repeated it while it was fresh in memory.

W. H. B—, boy, aged 6 years and 3 months.

E—e Jack 'Orner
'A i' i torner
E—e a Tis-i pie
'E put i' 'is fum
Pund ou' i pum
A aye ot a dud boy i I.

S. T—, boy, aged 6 years and 2 months.

Lil Jack 'Ornie
Sat i' a cornie
E—e a Thma' pie
'E pu' i' 'is thum
And pu' out a pum
And thaid what a good boy am I.

L. B—, boy, aged 6 years and 3 months.

Ick 'Ak 'Orki
'At i' cork
Eating a Kik-pa
Put i' gum
A' pu' ou' a pum
A' gu' wh' gam.

These examples illustrate well the principles of idioglossia language; the vowel sounds are fairly correct, the difficulty is to form the consonants; syllables are dropped, and words are clipped before and behind; consonants in sequence offer peculiar difficulties, and the second is simply omitted—pum for plum; the usual lisping errors—th for s, n for l, f for th, t and d for k and g—are seen; and often one sound tends to draw others into its orbit, as when a child says "Wiwie" when he intends to say "Willie," or as in the case of the boy quoted above who said, "Ick Ak' Orki 'At i cork."

Stammering.

Nature of Stammering.—The nature of stammering is often misunderstood, and ideas of treatment have thereby suffered. It is sometimes described as a spasmodic affection, but though spasmodic action may accompany it, the primary condition is one of paralysis or embarrassment.

To stammer, as the root meaning implies, is to be at a stand in speech, to hesitate, as for example in the case of the boy caught stealing in the orchard or the actor in stage-fright.

This is natural or physiological stammering, but stammering the disease is essentially like it; it is a sudden arrest in the automatic flow of speech. A large part of speech is purely automatic; when a particular sequence is started the whole reels off. This applies not only to the constituent syllables of words and the words of all familiar phrases, but to much of speech as the exponent of a developing train of thought.

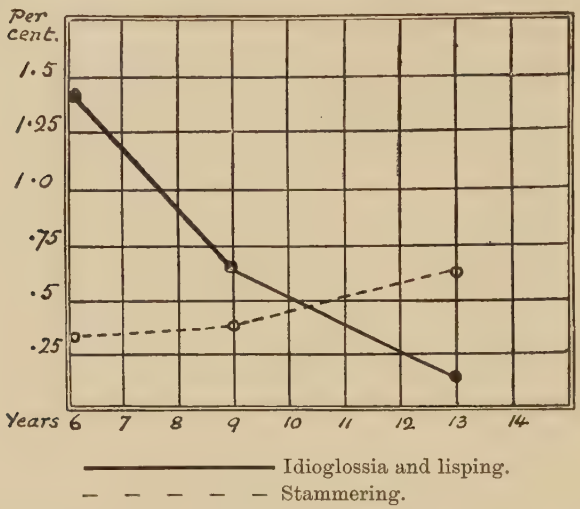
The automatism depends on the interplay of delicate neuro-muscular actions, and at any point the necessary connections may be broken. Such a break is the essential element of stammering; speech is arrested as suddenly as a watch is stopped by pushing a horse-hair among the wheels; withdraw the hair and the watch goes on again.

How exactly this break is effected and what plays the part of the horse-hair we do not know. In the cases of physiological stammering quoted above there is an absolute confusion of mind and blank of thought, but complete confusion of thought is not essential to paralysis of movement, as we may realise, at least on the subjective side, from the experience of nightmare in which the mental operations are often perfectly clear and yet we feel we cannot stir a limb.

It is apparently the highest nerve centres and association systems of the brain which are the seat of the above-mentioned delicate neuro-muscular actions at the basis of ordered speech. It is well known that in stammerers those lower and more fundamental neuro-muscular mechanisms concerned in the production of mere words and their constituent lalling sounds are usually in perfect working order. Although baulked by a particular word or syllable in one part of the sentence the stammerer will just as likely have no difficulty with it in another. Moreover, even bad stammerers can without hesitation sing or whisper what they want to say. In other words the fundamental powers of word production are perfect, it is merely initiation and control that are faulty.

Thus there is a profound difference between stammering and idioglossia or lisping, in which latter conditions, as already remarked, the fault lies in the more fundamental nerve centres. In a word, idioglossia and lisping are most probably true physical disorders, the necessary nervous associations have not yet been established, or are somehow, and for the time being permanently, at fault; possibly actual nerve strands may be lacking. On the other hand stammering must be classed with the psychic disorders such as hysteria, stage-fright, and the "phobias," and it shares with all of these their transitory, inconsistent and unpredictable character.

A futher hint of an essential difference between stammering and lisping or idioglossia may be gathered from the different effect of age on the prevalence of these ailments. The difference is well shown in the following diagram founded on the records of more than 80,000 children from the years 1909–13:



The diagram indicates that idioglossia and lisping are oftenest met with early in school life, viz. in the proportion of 1·38 per cent. at ages 5–6; at age 8–9 the proportion is 0·73 per cent., and at the average leaving age 0·22 per cent. In other words there is during school life a reduction to one-sixth of the numbers present at age 5–6. On the other hand, stammerers occur in the proportion of 0·3 per cent. among the youngest children, 0·43 per cent. midway in school life, and 0·66 per cent. at the leaving age. That is to say, there is apparently a doubling of the numbers of stammerers in the course of school life. The case of the stammerers is, however, really much worse than this, for alongside the constant and large accession of new cases there is all the time going on a considerable process of spontaneous cure. It may be called spontaneous because few of these cases ever have any treatment whatever, and still fewer adequate treatment. Of 62 cases of stammering found at the routine inspections of 1911 we were able to follow up 33 for a period of three years, and in that time about 33 per cent. had completely lost their stammering; others had improved and about 45 per cent. were no better or were growing worse. If this experience may be taken as a fair sample the real increase in the number of new cases as children grow older must be much more considerable than the diagram indicates.

Types of stammering.—Stammering occurs in two types, stammering and stuttering. The most elementary form of stammering is a simple aphasia; it is the plainest manifestation of stammering as a

paralysis or inhibition. You ask the child a question and he remains mute almost as if he had not heard—no twitching, no straining or flushing, only a certain look in the eye, patient and a little concerned, tells you what is going on within. Then in a few seconds the answer slips out quite simply, merely belated; the child could not begin. Most stammerers, however, in their desperate effort to start, make wild and apparently meaningless movements. They set the lips, the muscles twitch and roll, the face flushes, the eyelids quiver, the head may shake, the feet stamp, and the whole body in extreme cases may be violently convulsed, and yet not a sound comes. Just so a man who is straining to recall a forgotten name frowns, snaps his fingers, and stamps on the floor with his foot.

In both cases just cited the stammerer cannot begin. In others he begins quite well and sets his speech organs for the first syllable of his reply, but there he stops. He may mean to say "I don't know," but he cannot pass from the complex vowel sound "I," or rather he cannot pass from the first half to the second half of it ("a—e"). He may spend some seconds over the "a" and then tumble out "dunno" with startling rapidity. Or take another case: he sets his teeth and lips for f in father, but he cannot get on to the following vowel; he cannot even "breathe" the f. Often when the difficulty takes this form the attempted letter will be abandoned after a second or two without being "breathed," and the rest of the word, "ather," comes out quite naturally and easily. As a rule the initial letter or syllable of the sentence is the stumbling block, but any letter may serve.

Stuttering is not essentially different from stammering. There is the same sudden block at a certain point in the flow of speech and an inability to slide into the formation proper for the next sound; but instead of dwelling on the blocked point the stutterer perpetually harks back in the hope of a more successful "jump off."

Conditions Allied to Stammering.—There are certain faults of speaking which are allied to stammering in that they are transitory functional faults of control. One of these is the trick of speaking on the ingoing, instead of the outgoing, current of air. It is often noticed in stammerers, but still more often in connection with the next fault to be mentioned.

This is a curious habit of speaking for which there is not a good English expression. It is sometimes called spluttering or sputtering, from the spitting out of droplets of saliva, but this symptom is rarely present. Moreover, sputtering suggests friction and difficulty, whereas the cases referred to suggest rather a sort of tempestuous

ease. Speech rushes out in a tumultuous torrent; one word tumbles over another, initials and finals are knocked off and words telescoped in a surprising fashion. Imagination is working at top speed, and the channels of output must be served with the utmost expedition. It is the very opposite of stammering, a diarrhœa rather than a constipation. The speaker can always curb himself and speak with common deliberation.

In chorea the respiration and speech muscles, like every other, may exhibit uncontrolled movements and simulate stammering.

Sex Distribution.—The relative immunity of girls as compared with boys in regard to all the common speech defects has been already discussed in this JOURNAL.* There are three to four times as many boy stammerers as girls.

Some Remarks on Treatment.—As regards the treatment of speech defects we are still in the culture stage of "professors" and "systems." I do not say this derisively, but quite respectfully, for almost all medical treatment has had to pass through the system-mongering stage. It is not, however, the final and clear-eyed stage, and the time is perhaps ready for an advance.

Lisping and idioglossia require a totally different kind of treatment from that of stammering. Many cases get well spontaneously, though by no means all. Where educational treatment is needed the general principles would seem to be those proper to the teaching of new co-ordinations of movements, as for example in swimming or dancing. The child must be shown what is expected of him, and put in the way of doing it. The positions of tongue, lips, etc., required for the right pronunciation of the sounds must be impressed on the child's understanding by letting him see, hear, and touch the acting organs of his teacher. The child's own tongue should, if necessary, be directed by means of a probe or bone crochet needle.

Above all, careful search should be made in the child's own vocabulary for some word in which he unwittingly gives the difficult sound its right pronunciation. It is surprising how often this happens. The boy, W. H. B—, referred to above, always said "torner" for "corner"; but he could say "Jack" perfectly well, and he could also say "orner." By bringing the two into contiguity in a sentence and gradually shortening the interval, such a child can often be got to pass through "Jack . . . orner," "Jack-orner," "Jackorner," till he arrives at "corner."

* BRITISH JOURNAL OF CHILDREN'S DISEASES, 1914, xi, p. 113.

The children should be practised in distinguishing the sounds of allied letters, just as Montessori children are practised with different colours and smells.

Another method is to find out the nearest wrong sound the child can make; he perhaps cannot say "Sarah," but he can say "sharer," and you then try to work from one to the other by scarcely perceptible shades of difference.

These children easily tire, for the whole difficulty is a feeble or imperfect organ; not more than two or three minutes' practice should be given at one time. We must rely mainly on natural growth of the organ, and practice must be regarded rather as a stimulus to growth.

The teacher should carefully study the formation of his own mouth when uttering speech sounds, and so be ready with detailed directions, but he must always be content when the correction is arrived at by the child in its own way.

Stammering calls for an absolutely different kind of treatment; or, to be precise, it calls for the avoidance of the methods above described as proper to lisping, etc. There probably is no one right or best method for stammerers. The most diverse methods have their tale of marvellous successes, and this is not difficult to understand in the case of a disorder in which, as has been suggested, 33 per cent. of the cases may all the time be undergoing spontaneous cure.

The fact seems to be that stammering is about as amenable to treatment as hysteria, stage-fright, or agoraphobia, neither more nor less; that is to say, we are dealing with temperament and nervous constitution, and the danger of relapses will always be present. The doctor or teacher who establishes an ascendancy over the patient will be most likely to effect a cure. Much of the treatment based on the physiology of breathing and an intimate knowledge of the phonetics of each letter-sound is beside the mark, save as a sort of placebo or means of augmenting confidence and self-possession.

Each case requires a perfectly individual method which only a large experience—and I will add a freedom from a too firm belief in one's own system—can suggest. But we can say more confidently what not to do. Anything in the nature of repeated trial under the risk of repeated failure is fatally wrong. Reproof or manifest disappointment of the teacher, so good in many other cases, is here out of place. Infinite patience, the skirting of difficulties and "looking the other way," ignoring failures, or even treating them as successes, these are some of the general principles of the treatment of stammering.

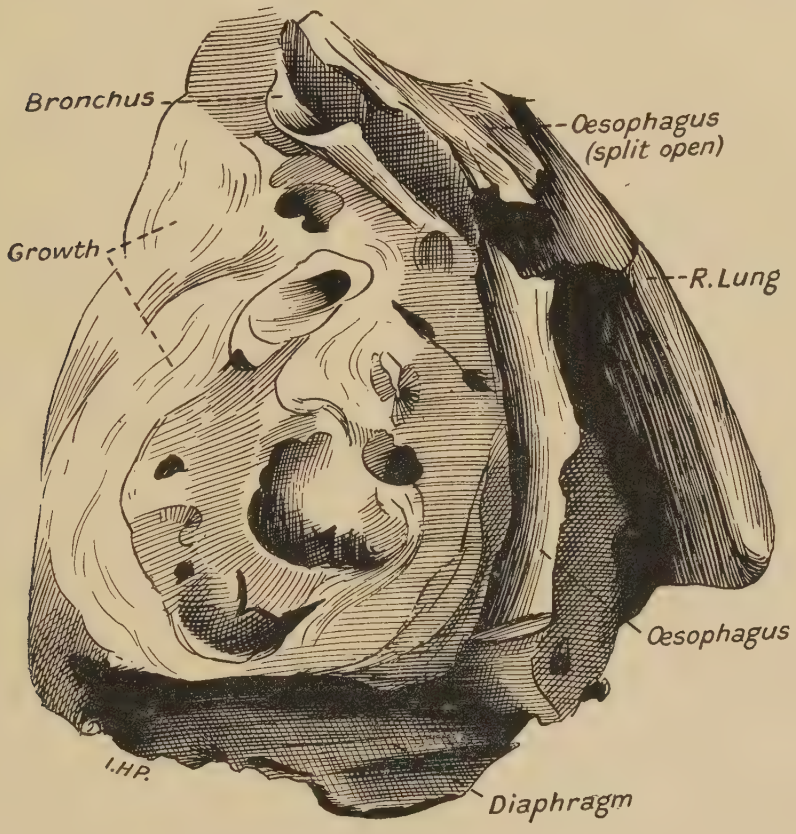
INFILTRATION OF HEART BY LARGE ROUND-CELLED SARCOMA.*

By E. Cecil Williams, M.B., M.R.C.P.,
Physician to the Royal Hospital for Sick Children, Bristol.

The specimen was removed from a boy, aged 8 years, who was admitted to hospital with a history of pain in the left shoulder joint; he had been seriously ill at home for six weeks with cough and much expectoration; two weeks before admission he suffered from vomiting, swelling of the eyelids, and orthopnœa. On admission he was cyanosed, respirations 44, pulse 112. The area of cardiac dulness was increased, and the heart sounds were muffled, but there was no distinct murmur. Rotch's sign was present. There was no marked præcordial bulging. Two weeks after admission he was much less cyanosed and could lie down on his pillow, after ℥iss blood had been removed by venesection. The area of cardiac dulness had diminished, and he remained much better for a couple of weeks, when a friction sound (pericardial) was heard over the sternum. He then began to get gradually worse, with increasing dyspnœa and some œdema of the feet. There was never any difficulty in swallowing, nor was there any paralysis of the vocal cords. The urine only contained occasionally a trace of albumin. The right lung was dull at the base, and there were scattered moist sounds heard behind. The left lung was very dull at the base, the breath-sounds were weak, and two ounces of yellow fluid were withdrawn with an exploring needle. There were no enlarged veins over the abdomen, the liver could be felt about four fingers' breadth below the costal margin—there was no free fluid in the abdomen. The boy died on November the 26th—about seven weeks after admission. The diagnosis was one of pericarditis with effusion and possibly an adherent pericardium. The autopsy, however, showed the anterior mediastinum to be full of a white, hard growth, adherent to the sternum and invading the visceral and parietal layers of the pericardium, so that the two layers were indistinguishable. Below the growth invaded the diaphragm. The heart itself was encased in the hard growth, which invaded the heart muscle itself. The mitral valve was thickened and appeared infiltrated—there was no stenosis. There were some scattered areas of growth in both pleura, and in each there was blood-stained fluid. In the left pleural cavity there were many tough adhesions. There

* The case was reported to the Section for the Study of Disease in Children of the Royal Society of Medicine on January the 28th, 1916.

was no enlargement of either the cervical or axillary glands. Prof. Walker Hall kindly examined a section of the growth and declared it to be a large round-celled sarcoma, probably originating in the sternal periosteum. Osler and McCrae in their 'System of Medicine' say that primary malignant growth in the pericardium is very rare.



Infiltration of heart by large round-celled sarcoma.

They quote a case of sarcoma of the pericardium reported by W. H. Broadbent ('Trans. Path. Soc. Lond.,' 1882, xxxiii, p. 78), where the symptoms were pain in the shoulders, dyspnœa, and pleural and pericardial effusions; also a case by J. C. Williams and A. L. Miller ('New York Med. Journ.,' 1900, lxxi, p. 537). They say that secondary growths, arising in the mediastinum or other parts are scarcely more frequent, and that malignant growths of the heart itself are usually secondary to malignant disease of neighbouring or distal parts, and that

in a few cases the growth invades both peri- and myocardium. They quote a case in which the left ventricle was almost entirely invaded by new growth. They state there are no symptoms characteristic of myocardial new growth, and that the diagnosis is either impossible or a matter of good fortune.

Philadelphia Pediatric Society.

October the 12th, 1915.

Œsophagotomy for Foreign Body in the Œsophagus.—Dr. Nathaniel Ginsburg.—A boy, aged 6 years, was admitted to hospital on June the 28th, 1915, with a history of having swallowed a foreign body forty-eight hours previously. On admission to the hospital the child had a temperature of 100·2° F., pulse 100, respirations 24. His mother stated that at the suggestion of a man he swallowed a thin metallic washer of about the diameter of a twenty-five cent piece. Swallowing was difficult, only liquids passing down the gullet without difficulty. The voice was somewhat brassy and respirations somewhat laboured. Radiographic examination revealed the foreign body with a perforation in the middle lodged in the gullet on a level with the fifth cervical vertebra. The broad surface of the foreign body presented anteroposteriorly. An operation was performed on June the 29th, 1915, under ether anæsthesia. An incision about 6 in. long was made over the anterior border of the left sterno-mastoid muscle, beginning about the middle of the muscle and passing down over the manubrium. The dissection was carried down to the omo-hyoid muscle, the carotid sheath with its contents was retracted laterally, and the thyroid gland was held to the median side, rotation of the trachea exposing the œsophagus. The left recurrent laryngeal nerve was exposed in the field of operation and avoided. Two traction sutures of silk were inserted in the dorsal surface of the œsophagus, which was lifted from its bed and a longitudinal incision made and the gullet opened. The foreign body in the upper angle of the wound was removed with forceps, and the incision of the œsophagus was tightly closed with interrupted catgut sutures. The lateral aspect of the œsophagus contiguous to the incision was packed with iodoform gauze and the incision in the neck was closed, the gauze projecting at the lower angle of the skin wound. The operation was comparatively easy, and the patient was not allowed anything by mouth for twenty-four hours, He was caught, however, on the night of the operation emptying a bowl of ice water, but apparently suffered no deleterious effects therefrom on the next day. The packing was removed from the lower angle of the wound on July the 3rd because of discolouration. Liquids taken by mouth exuded through the cervical incision, and continued to do so for a period of three weeks following the operation. On the nineteenth day following operation there was a sudden rise in temperature, which was of the septic type and which persisted for five days, but otherwise recovery was uneventful, and at the present time the patient was well and attending school. He had had some harshness of the voice and a left traumatic torticollis which had cleared

up, and was probably the result of severe retraction of the sterno-mastoid muscle during the operation. Dr. Ginsburg had chosen this method for the removal of the foreign body because of the certainty with which it could be reached, the fear that impending perforation of the œsophagus was present, and realising that, if the latter state existed, incision in the neck would afford drainage from the œsophageal fistula. The comparison of the foreign body removed with the shadow shown on the plate at once showed the tendency of X-ray shadows to oversize the object sought for. In this instance the shadow showed a diameter of at least $\frac{1}{8}$th of an inch greater than the actual diameter of the foreign body.

Malaria.—Dr. Eleanor C. Jones showed a coloured infant with malaria, and demonstrated the plasmodium of tertian malaria in the blood. The child, aged 5 months, was breast-fed, and weighed 13 lb. 8 oz. The mother took the baby to Arlington, Virginia, on July the 24th, where the mother herself and an older child also contracted malaria. The baby was brought back to Philadelphia on August the 5th, but had no clinical symptoms until August the 12th, and then seemed suddenly to collapse. It became very cold, lips blue, and the face looked pinched; after about twenty minutes it revived. Then a high fever set in and lasted about four hours. It had these attacks, so the mother said, every day for the first two weeks, and then every other day, and it also developed a severe diarrhœa. On September the 24th a specimen of blood was taken and the "plasmodium vivax" found. The blood did not show any of the hyaline or segmented type of organisms, but only the granular form. The temperature was 106·2° F. on the day of admission, and 5 gr. of the bisulphate of quinine was administered on the 26th, three hours before the expected cold stage. The temperature in this paroxysm rose to 104° F. Then 3 gr. of the quinine were given three times a day for the next seven days, or until the baby left the hospital. The spleen remained slightly enlarged, but no more paroxysms occurred. The mother was advised to continue the quinine one week out of each month for one year.

Infantile Scurvy.—Dr. J. R. Wells showed a child, aged 12 months, with acute epiphysitis of scurvy, and demonstrated the lesion with X-ray pictures. This child came to him with a history of a sudden onset of pain in the right lower extremity and a doubtful history of injury to this leg. The child cried when the right limb was touched and refused to move it. This child had been breast-fed for a month, and since that time had been on Eskay's food. On examining the child he had found an undernourished, anæmic appearance with slight evidences of rickets, and the gums showed several blood-filled blebs. On examining the right leg no evidence of fracture or dislocation was found, only pain and some swelling. The treatment consisted of a straight posterior splint and a change of diet to a rational milk formula. After two days' treatment, during which the child seemed very comfortable, there was noticed considerably more swelling of the right leg with an area of ecchymosis, and a diagnosis of acute epiphysitis of scurvy was made. The only other treatment consisted of $\frac{1}{2}$ oz. of pure cod liver oil rubbed into the abdomen daily.

Pyloric Stenosis.—Dr. G. Victor Janvier showed a child aged $3\frac{1}{2}$ years with probable pyloric stenosis. He had first seen the child two years before and had been treating it since. The family history had no bearing on the

present condition, and the chief complaint was that the child was often unable to retain any kind of nourishment. The vomiting in this case was not projectile, but was described by the mother as "rolling up and rolling out." While examining the child the only noticeable thing was that it had just a shade of cretinoid expression, although no other signs of cretinism appeared. As yet there had been no gastric analysis in the hospital, although six months before an unsatisfactory one had been done which showed hyperacidity. The blood and urine reports at the present time were negative, although at different times this child had had some casts, acetone, oxalates, and indican in the urine. His vomiting at the present time was quite variable. Sometimes he would keep down even solid food fairly well, and at other times would vomit everything given him.

Ringworm of the Scalp.—Dr. John F. Sinclair showed three cases illustrating the cure of ringworm by X rays, and also the different stages of the process of regeneration of the hair in the affected area.

Enlarged Bronchial Glands.—Dr. Sinclair.—The child came to him when aged 5 years with a history of a cough from very early life. In spite of repeated examinations he could find no explanation of this cough. Several specialists decided that the adenoids and tonsils were not responsible. The ears were negative, except for a small amount of impacted wax. Finally he had some X-ray pictures taken, which showed that the right apex was not quite as clear as the left, and that in the region of the middle lobe of the right lung there were several enlarged glands and a few also in the region of the left upper lobe. The child was put on ascending doses of potassium iodide. Another X-ray picture taken some months later showed that these glands were gradually diminishing in size.

Pyloric Spasm.—Dr. Theodore Le Boutillier showed a child brought to him with a history of projectile vomiting occurring at irregular intervals. The weight at birth had been 9 lb., but when first seen the child weighed only 6½ lb. He had never done well on the breast. He vomited frequently but irregularly, and the mother said she had been told to take him off the breast and put him on a milk formula, which, however, did not improve the condition. Examination showed a poorly nourished, emaciated child, with sunken fontanelle, flaccid abdomen, and gastric peristalsis very marked, three typical attacks occurring during the examination, the wave extending from the œsophageal to the pyloric end. There was a history of retention of food for from six to eight hours followed by projectile vomiting. No pyloric mass was palpable. The following treatment was ordered: The child was to be fed every hour and a half for eight minutes and also was given bromide and nux vomica and brandy every third hour before breast feeding. During the first twenty-four hours after the treatment was started the child only vomited once, and during the second twenty-four hours but twice. The breast feedings were gradually increased in length, and then in the interval between feedings until at the present time the child was being fed for twenty minutes every two and a half hours. It had continued to improve, gaining from 4 to 8 oz. in weight each week, and there had been no vomiting for one month. He was now aged 5 months, weighed 10½ lb., and was perfectly normal with the exception of a slight enlargement of the spleen.

It was important in cases of this type to make a careful examination of the child, and one should also hesitate a long time before taking it off the breast.

Epilepsy apparently benefited by the Injection of Crotalin.—Dr. Harry Lowenburg.—In the family history of this case he could discover no consanguinity or any history of other epileptics. The child had been fed for one year and three months on breast milk. At ten months of age the child began to have typical convulsions which continued until the treatment was begun three months ago. It was a backward child and had not yet talked. The hearing was apparently normal. At times it had flashes of intelligence. At first he gave 1/300 of a grain of crotalin, but had now increased the dose to 1/75 of a grain. He was afraid to increase the dosage as he had had one fatality in a child from giving a larger dose. In this fatal case there had been no convulsions for a year, but he had continued giving crotalin when suddenly on giving the child an injection it developed a typical rattlesnake bite and died. In the present case crotalin had seemed to have done some good. The child had had altogether from 12 to 15 injections since the treatment was begun, and had had no more convulsions.

Anaphylactic Food Reactions.—Dr. Albert Strickler showed a child, aged 19 months, with eczema of the face and involving the back of the ears, who had been injected with fourteen different kinds of food stuffs.

Anaphylactic food reactions had been done on children for a long period of time. The usual dose was 1/10 c.c. of the substance. Dr. Strickler had injected about sixty children with proteins of varying doses, and in all these cases 1/10 c.c. did not give any reaction in children in an apparently normal condition. No reactions were considered positive unless they remained for twenty-four hours. A positive anaphylactic reaction to a certain substance did not mean that the reaction of that substance was the cause of the child's condition, but this should be considered only as one part of the symptom-complex.

Spastic Diplegia.—Dr. William Drayton, Jun.—A schoolboy, aged 8 years, came to the hospital on September the 22nd, 1913. The chief complaint was that he was unable to walk more than a short distance. The family history was negative. The mother had "membranous croup" during pregnancy. The labour lasted about five hours, and no forceps were used. The child was the second of three children, and was a bottle baby. He had had influenza. The mother said that about an hour after the child was born he developed "spasms," which were almost continuous for three days, since when they had never recurred. He did not walk until 4 years of age; was aged 3 years before he could sit up; and talked at 1½ years. During the last year while in school he had grown better and walking had improved. On examination he appeared very thin, very pale, and had constant but slight athetoid movements in both hands and legs. When standing unsupported he was in pretty constant movement. No spasm of the face either at rest or when talking, but the neck muscles were involved. He could lie down and get up from the floor without difficulty. Knee-jerks were difficult to obtain on account of the spasticity. Stroking of the right sole caused marked slow extension of the great toe and fanning of the other toes. Stroking of the left sole caused fanning of toes without much extension. Left Achilles jerk was fairly marked, the right scarcely obtain-

able. No ankle clonus. Mental state good. Pupils reacted to light and accommodation. Tongue clean and teeth good. Station poor. Gait spastic, drags toes. Right arm also spastic, left much better. Wassermann negative in the blood and cerebro-spinal fluid. There was no globulin in the spinal fluid, and the cell count was 4. Fundi negative. About 70 per cent. of these cases showed positive Wassermann, and even cases showing negative Wassermann often improved with mercury and iodide. At the Orthopædic Hospital these cases were treated with massage and slow exercises. This child had improved somewhat under mercury. He was of sufficient interest to show because these cases were too often sent to the hospital by physicians with a diagnosis of infantile paralysis.

Clonic Spasm of the Muscles of the Neck and Back.—Dr. Drayton.—The patient was a girl, aged 7 years. The mother died of hæmorrhage when six weeks pregnant. The father, one brother, and one sister were alive and well. The patient was first thought to have chorea. The nervousness had been present ever since birth. Physical examination showed a systolic murmur at the apex. The knee-jerks were increased. Lower extremities quiet. Wassermann positive. The child had a most peculiar swaying movement of the head, neck, and back. There was a perfectly rhythmic motion of the muscles of the neck and back which was always worse on observation and stopped when the child was asleep.

Spleno-myelogenous Leukæmia.—Dr. Arthur Newlin showed a boy, aged 10 years, with a very much enlarged spleen which extended as far as the pubis inferiorly and across the median line. The blood showed 3,000,000 reds and 400,000 whites, of which 21 per cent. were myelocytes, Under small doses of benzol the white count had been reduced to 200,000.

Epileptiform Convulsions.—Dr. David R. Bowen and Dr. Newlin showed a boy, aged 9 years, who since the age of 1 year had had weakness of the right side, the arm, leg, and right side of the face being affected. The convulsive seizures also dated from that age, though the parents were unable to state which condition was noted first. The convulsions were general, now occurring about once a month. On examination he was found to have a slightly hemiplegic gait with some wasting of the muscles of the right arm and leg, with increased reflexes on the right side. His eye-grounds were negative, as was also the Wassermann reaction in the blood and spinal fluid. A pair of stereoscopic plates showed an oval density in the left fronto-parietal region. This was interpreted as a possible blood clot with calcareous degeneration, and as a probable etiologic factor in both the hemiplegia and the convulsive seizures.

Congenital Deformity of the Upper Limbs.—Dr. John Speese.—The child had only one arm at birth, the other being completely absent. The arm showed complete ankylosis at the elbow, the forearm being in the position of extreme pronation. There are three fingers present, and in spite of the lack of supination and the absence of motion in the elbow-joint the boy was able to use his arm and hand with considerable dexterity. The X rays showed that the humerus was fused with the single bone present in the forearm, and that there was absolutely no evidence of an elbow-joint. On the opposite side there were several rudimentary bones present in the soft tissue of the shoulder representing the undeveloped bones of the arm.

On this side there was a decided elongation in the region of the vertebra indicating the formation of a cervical rib. On account of the fusion of the bones in the region of the elbow-joint, operative procedures were thought inadvisable.

Congenital Heart Disease.—Dr. John B. Carson showed a specimen from a patient aged 4 weeks at the time of death. It was while under treatment for enteritis. It was doing very well, when it had a sudden attack of cyanosis and died within a few minutes. The autopsy showed a well-developed, widely patent ductus arteriosus. The foramen ovale was also patent. Nothing else was abnormal, except that the kidneys were slightly cystic. At no time was there a murmur or was a change in the percussion area of the heart demonstrable.

Abstracts from Current Literature.

Treatment.

The newer antitoxin treatment of diphtheria (*'Lancet-Clinic,'* 1915, cxiv, *p.* 655).—**C. A. Stammel, Jun.**—For the last two years a large initial dose has been used at the Cincinnati Contagious Hospital with good results. In a series of 286 cases from June, 1913, to October, 1914, only 18 died, a mortality of 6 per cent. Thirteen deaths were due to laryngeal diphtheria within one hour to two days after admission. The routine was as follows: 10,000 units in mild tonsillar diphtheria, 10,000 to 15,000 in moderate cases of two to three days' duration, 20,000 to 30,000 in severe faucial cases, 30,000 to 40,000 intravenously when nasal or nasopharyngeal inflammation complicated the faucial condition, 40,000 to 60,000 in neglected malignant cases, 30,000 to 60,000 in all laryngeal cases. No bad results followed the use of these large doses. The writer recommends intramuscular injections for moderately severe cases.

J. D. Rolleston.

The treatment of persistent diphtheria infection by means of diphtheria endotoxin (*'Lancet,'* 1915, i, *p.* 275).—**R. Tanner Hewlett** recommends, in persistent diphtheria infection, diphtheria endotoxin in doses of 0·5 c.c., 1 c.c., and (if required) 1·5 c.c. at intervals of about seven days. Of twenty-four cases thus treated, in seventeen the bacilli disappeared within a reasonable time after the use of the endotoxin; in one the bacilli did not disappear until seventeen days after the last dose of endotoxin, and in six the treatment was unsuccessful. In no case has any untoward effect been noticed. The endotoxin is injected into the muscle of the upper arm or back, and gives rise to some pain, tenderness, and swelling, lasting a day or two, at the site of injection, and occasionally to some malaise, rash, and rise of temperature. The author thinks that the results are such as to warrant an extended trial of the endotoxin in the treatment of these troublesome cases of persistent diphtheria infection. Short notes of four cases are given.

J. Allan.

The use of convalescent and normal blood in the treatment of scarlet fever (*'Journ. Amer. Med. Assoc.,'* 1915, lxv, *p.* 875).—**A. Zingher** advocates the intramuscular injection of the blood of convalescents or of

normal individuals in cases of scarlet fever, whether of the early toxic or malignant type or later septic cases. In the former convalescent blood is used, while in the latter normal blood is to be preferred on account of its nutritive and stimulating properties and its well-known antibody content. In young children half an ounce and in older children and adults one ounce is injected into each of the following regions: triceps, both thighs (vastus externus), the calves (soleus), and both gluteal regions. Good results have been obtained in a limited number of patients.

T. R. Whipham.

The vaccine treatment of some complications in scarlet fever (*'Journ. State Med.,'* 1915, xxiii, *p.* 202).—**A. Love** points out that the most common complication in scarlet fever with which vaccine therapy is concerned is otorrhœa, and the treatment should be commenced as soon as a purulent discharge has been established. It is suggested as a means of saving time that whenever a mixed growth is obtained, a mixed or polyvalent vaccine be prepared right off, instead of subculturing, in order to obtain a special organism, which after all may not be the causal organism. If this is done and a sufficient growth obtained, the vaccine can easily be ready for use in thirty-six hours. It is wise to begin with small doses and gradually increase them; the nature of the organism, too, will naturally govern the initial dose, a smaller number of streptococci, for example, being administered than of staphylococci. The author does not estimate the opsonic index, because it takes too long: it also requires delicate and accurate manipulation, and seems to be in practice quite unnecessary. The index he depends upon in practice is the general condition of the patient and the temperature reaction. Two cases successfully treated by this means are reported in a boy and a girl both aged 13 years. In conclusion the author strongly advocates the inclusion of autogenous vaccine therapy in the routine treatment of scarlatinal otorrhœa and other more trifling complications, as it greatly reduces the duration of the discharge and appears to effect a rapid and permanent cure without being in any way detrimental to the patient's welfare.

J. Allan.

The vaccine treatment of typhoid fever in the child (*'Rev. med. Arg.,'* 1914, xxii, *p.* 965).—**M. Acuña** alludes to the cases described by Méry (*vide* British Journal of Children's Diseases, 1914, xi, *p.* 176), Guinon (*ibid., p.* 224), Comby (*ibid., p.* 267), Netter (*ibid., p.* 335) and others, and records 19 personal cases in children aged from 4 to 13 years treated by Vincent's vaccine; 13 were injected subcutaneously and 6 both subcutaneously and intravenously. Moderate doses were given at first, and gradually increased every two days. Thus on the first day 100 to 150 million dead bacilli were injected, in another two days 375 million, then 500 million, and lastly 700 to 1000 million. As a rule four to five injections were needed to obtain complete apyrexia, or a total of 2–3 c.c.—*i. e.* 2000 million bacilli. The intravenous injections produced a marvellous result, causing a very rapid change in the temperature and the typhoid state. Subcutaneous injections had a slower and less vigorous action; recovery gradually took place after four or five injections. The treatment has an obvious effect upon the typhoid state and the temperature curve. The general condition quickly improves, and convalescence is rapid and complete. The treatment also has a favourable action on the course of the disease, which becomes less severe and of shorter duration. Its action is most remarkable during the first week of the disease; it is less striking in

the second, and uncertain in the third. The moderate forms respond better to treatment than the severe, for whom intravenous injections are to be preferred. Vaccinotherapy does not prevent secondary infections and relapses.
J. D. Rolleston.

Treatment of typhoid fever in children by injection of specific vaccine (*'Thèses de Paris,'* 1913–14, No. 263).—**P. Pruvost** has collected statistics of 98 cases of typhoid fever in children treated with vaccines, including 33 personal cases. The mortality among the 98 cases was 3·06 per cent. The doses used by Pruvost were as follows: Above 5 years of age, $\frac{1}{4}$ c.c. (100 million) of Vincent's polyvalent vaccine the first day, the second day $\frac{1}{2}$ c.c., the third day 1 c.c., the fourth day 1 c.c., and a few days later the final dose of 2 c.c. Below 5 years of age an initial dose of $\frac{1}{8}$ c.c., rapidly increased. The consequences of the vaccine treatment are classified under two heads: (1) Vaccinal reactions, which appeared immediately after the injection and were of short duration. Their occurrence was inconstant. Any of the following might be observed: A painful erythematous nodule at the injection site, increase in size of the spleen much more frequent after the use of Vincent's autolysat than after use of the polyvalent vaccine, rise of temperature, diarrhœa followed by constipation, transient albuminuria, eruption of rose spots, and leucocytosis of four or five days' duration. (2) Effect on the disease itself. The vaccines did not appear to affect the physical signs, such as enlargement of the spleen, rose spots, or bronchitis. Improvement might occur in the general condition and the nervous symptoms, and the duration of the disease might be shortened, but the chief benefit of the treatment was reduction in the number of relapses. Unfavourable results were of two kinds: (1) Cardio-vascular. Marked hypotension followed injection in seven of Pruvost's cases. (2) Infective phenomena, *e. g.*, boils, abscesses, pemphigus, cholecystitis, appendicitis, and broncho-pneumonia have been attributed to the use of vaccines by some authors, but none were observed in Pruvost's cases. The use of vaccines is contra-indicated in late cases (after the twelfth day), or in ataxo-adynamic cases with marked hypotension from the onset and pronounced infective symptoms.
J. D. Rolleston.

Pertussis vaccine (*'Therap. Gazette,'* 1914, xxx, *p.* 14).—**O. H. Kelsall** treated 30 cases of pertussis in children aged from 2 months to 12 years, the great majority under 3 years, with a vaccine prepared in a 1 c.c. solution containing 50 million killed bacteria. At first he used a dose of 20 to 25 millions, but later got better results by using 50 millions. In every case improvement occurred, the paroxysms were rendered milder and less frequent. The disease in most cases was shortened to four weeks, and there was a practical absence of complications. There was only one case of broncho-pneumonia and one death.
J. D. Rolleston.

The treatment of epidemic meningitis (*'La Pediatria,'* 1915, xxiii, *p.* 637).—**M. Ponticaccia** reports the case of a boy, aged 10 years, treated ineffectually with antimeningococcic serum, and intraspinal injections of iodised serum, who recovered rapidly and completely after three intrathecal injections of hydrogen peroxide 20 per cent., the two first containing 1 c.c. and the third 2·5 c.c. The fall of temperature was temporary after the first two and permanent after the last in a manner that leads the author to consider that there was a direct connection between the recovery and the treatment.
Vincent Dickinson.

Vaccine treatment of gonococcal vaginitis in children (*'Rev. méd. del Uruguay,'* 1915, xviii, *p.* 79).—**A. Carrall** treated 15 cases aged from 5 to 12 years with Nicolle's vaccine in doses of $\frac{1}{2}$ to 1 c.c. in subcutaneous or intramuscular injection. His conclusions were as follows: (1) The vaccine did not cure the disease in the sense of causing a disappearance of the gonococcus in the vaginal exudate, for in only 2 cases out of 15 did the gonococcus disappear. (2) The vaccine caused a marked diminution of the secretion. (3) The injection almost always caused a febrile reaction which might reach 104° F. and be accompanied by intense headache, nausea, vomiting, and prostration. (4) The amount of vaccine used did not appear to increase the reaction, but repetition of the dose always caused a more violent reaction. J. D. Rolleston.

The theory of salicylate therapy in rheumatic infection (*'Lancet,'* 1915, i, *p.* 175).—**R. Miller** discusses the *modus operandi* of rheumatic infection and the *modus operandi* of salicylate treatment as applied to various rheumatic manifestations, such as arthritis, chorea, carditis, nodules, tonsillitis, etc. He briefly considers other theories of salicylate action. It is concluded that salicylate has the power of diminishing the activity of the rheumatic infecting agent, and this may be taken as the working basis of salicylate therapy in rheumatism. The drug should be administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (*e.g.* tuberculosis). Care must be taken to discriminate between symptoms directly due to active rheumatic imflammatory processes and those dependent upon toxic parenchymatous changes which may remain long after all bacterial activity is at an end. The temperature chart is the guide to the dose of salicylate to be employed. Used solely with a view to controlling bacterial activity the effective range of dosage for child or adult is usually from 60 to 120 gr. per diem. Less than 1 drachm daily is rarely sufficient; more than 2 drachms need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control may be used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining. Any dose greater than 100 gr. should be given, as D. B. Lees teaches, subdivided into 10 doses in the 24 hours. Large infrequent doses should never be given, particularly in children. Constipation must be avoided. The sodium salicylate should be combined with an equal dose of sodium bicarbonate; the author has not found the double quantity of soda necessary in doses of this grade. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise. J. Allan.

A new method of treatment of chorea in children (*'Rev. Ibero-Amer. de Cienc. Méd.,'* 1915, *p.* 32).—**C. S. de los Terreros.**—Some writers attribute a syphilitic origin to chorea, and record successful results from antisyphilitic treatment (*vide* British Journal of Children's Diseases, 1913, x, *p.* 188, Weill, Mouriquand and Goyet; *ibid.*, 1914, xi, *p.* 44, Pierret; *p.* 45, Flatau; *p.* 328, Roustan). Others regard it as a neurosis of hysterical origin (*ibid.*, 1913, x, *p.* 273, Weisenburg; *p.* 517, Eastman; p. 518,

Popoff), and others again as closely connected with rheumatism (*ibid.*, 1913, x, *p.* 84, Fraser, Berkowitz; 1914, xi, *p.* 89, Navarro; *p.* 130, Grabois; *p.* 273, Richards). The writer himself holds that there is a single species of germ which causes rheumatism and chorea, but that the varieties are different. He concludes that the same treatment should be employed for the two conditions. He has recently adopted in 3 cases of chorea the intravenous injection of perchloride of mercury as recommended by Huertas for acute polyarticular rheumatism in adults. The ages of the patients were from 8 to 10 years; 1 to 2 mgm. of the salt was injected three times a week until a total of 22 to 40 mgm. had been injected. The results were encouraging, but in none was recovery sufficiently striking to suggest a syphilitic origin for the disease. No bad effects such as anæmia, nephritis, or stomatitis occurred.

J. D. Rolleston.

Extract of pituitary body of the ox in the treatment of rheumatic arthritis (*'Med. Record,'* 1913, lxxxiv, *p.* 608).—**C. Wallace** and **F. S. Child** report under this title the treatment of various forms of arthritis, including rheumatoid arthritis and osteoarthritis with pituitary extract. In all ten cases are reported in which the authors were gratified by the results they obtained. The preparation used consisted of 0·3 grm. of desiccated fresh pituitary body of the ox in 30 c.c. of normal saline solution, to which was added 0·3 grm. of chloretone crystals. The filtered and sterilised preparation was administered in 1 c.c. doses intramuscularly. The theory upon which the use of the extract was based is not discussed.

Reginald Miller.

Neo-salvarsan in cases of gangrene (*'Ann. Paul. de med. e. cir.,'* 1914, iii, *p.* 173).—**M. Junqueira** records 7 cases, 5 of which occurred in children. (1) Female, aged 17 months, with cancrum oris following measles. Subcutaneous injection of neo-salvarsan in watery solution, followed by local application of neo-salvarsan and vaseline. Recovery. (2) Boy, aged 11 years, with malignant tumour of foot and leg. Intravenous injection. Death. (3) Girl, aged 5 years, with cancrum oris, following measles. Subcutaneous injection. Recovery. (4) Girl, aged 7 years. Cancrum oris. Subcutaneous injection. Disappearance of fever, but no other improvement. Death. (5) Girl, aged 15 years, with bedsore following typhoid fever. Intravenous injection of neo-salvarsan. Recovery.

J. D. Rolleston.

Gangrene of the mouth: Treatment by neo-salvarsan (*'Ann. Paul. de med. e. cir.,'* 1915, iv, *p.* 62).—**M. Junqueira** records two more cases in children, aged 8 and 2 years respectively, successfully treated by intravenous injections of neo-salvarsan. In the first case, in which a smear showed various cocci and bacilli, among which Vincent's organisms predominated, 2 doses of 30 cgm. were given. No mention is made of a bacteriological examination or of the dose in the second case.

J. D. Rolleston.

Treatment of pylorospasm in infancy (*'Amer. Journ. Med. Sci.,'* 1914, cxlvii, *p.* 474).—**J. Ruhräh** discusses the diagnosis of cases of the symptom-complex of projectile vomiting, visible gastric peristalsis and palpable pylorus. This he regards as being found in two groups of cases. One, corresponding to the type known as congenital pyloric stenosis,

he looks upon as a distinct congenital condition, although spasm may intensify the symptoms. The second group consists of cases of pure spasm which may lead in his opinion to pyloric thickening. In the congenital cases he advocates operative treatment, in the spasmodic group medical measures. The diagnosis between the two groups is mainly to be made by a consideration of the severity of the symptoms, the definiteness of the pyloric tumour, and the progress of the case under medical treatment. In the treatment of spasmodic cases the author lays particular stress upon the value of breast-milk. He also finds atropine, in doses of 1/2000 gr. every four or six hours, of use. The other details of medical treatment are also discussed. REGINALD MILLER.

On the value of emulsions of liquid paraffin and castor oil in the treatment of certain types of chronic dyspepsia in childhood (*'Edin. Med. Journ.,'* 1915, I, *p.* 100).—**Charles M'Neil** discusses the treatment of various forms of chronic dyspepsia in children over 1 year by emulsions of liquid paraffin or of castor oil. His conclusions are as follows: (1) Emulsions of liquid paraffin or of castor oil (in small non-purgative doses) are of great value in the treatment of various and apparently distinct types of chronic dyspepsia in childhood. (2) These types are: (*a*) malnutrition, frequently associated with chronic diarrhœa, and only seldom with constipation; (*b*) enuresis, with dyspeptic symptoms; (*c*) recurrent vomiting (cyclical or bilious vomiting); (*d*) recurrent attacks of fainting, or sudden pallor; (*e*) urticaria or eczema, with dyspeptic symptoms. (3) In a great majority of these diverse types of illness there is an abnormal condition of the stools: this may often be a true diarrhœa, but not seldom also merely a too soft consistence of the stool with or without the presence of mucus. Constipation was present in only a small majority. (4) A large number of these cases have followed the common infectious fevers of childhood, especially measles and whooping cough. These post-infection cases of dyspepsia seem to be particularly amenable to this form of treatment. (5) In a series of 13 completed cases of enuresis, 8 were cured and 3 greatly benefited by this treatment. (6) The action of liquid paraffin and castor oil used as described is similar. It is entirely local and confined to the mucous membranes of the alimentary tract. The action is most probably a sedative one, exerted on the unhealthy and congested mucous lining of the small and large intestines. The dose of liquid paraffin given was 30 minims three times daily, and that of castor oil 15 minims three times a day. One or other of the following powders (℞ Hydrarg. subchlor. gr. i; sod. sal. gr. ii; sod. bicarb. gr. v; or ℞ Hydrarg. subchlor. gr. i; pulv. rhei. gr. i; magn. carb. gr. iii) given at night have been found by the author to be useful adjuvants in treatment. The dietetic *régime* must be attended to, and the general recommendations given as to diet have been as follows: To stop altogether, if possible, sweets, raw fruits, sweet cakes, jam; to restrict very much soups and the red meats; to be sparing with eggs, porridge, and green vegetables at the outset; to allow freely, milk, fish, and white meats, bread and butter, the finer cereal puddings, orange juice and a little cooked fruit, and the malt preparations and foods. Brief clinical histories are given of cases in each of the groups above mentioned to illustrate various points in this treatment. The author points out that emulsions of petroleum and of cod-liver oil both enjoy a reputation in the treatment of conditions of malnutrition in childhood, and in each case the reputation is no doubt

deserved, but it is certain that the remedial process is quite different in each case. Cod-liver oil is a direct nutrient. Liquid paraffin has no nutritive value, and can only subserve nutrition by its ameliorative action on the digestive surfaces of the bowel. If the digestion is at fault, the use of cod-liver oil, instead of promoting nutrition, may actually retard it, by depressing the activity of secretion in the stomach; while petroleum emulsion will often quickly improve the efficiency of digestion. Where malnutrition is therefore associated with chronic dyspepsia, liquid paraffin may be employed from the outset; while cod-liver oil should, as a rule, be reserved to a later period when the dyspepsia has been overcome or improved.

J. Allan.

The subcutaneous administration of fluid in acute and subacute conditions in infancy (*'Canadian Med. Assoc. Journ.,'* 1915, v, *p.* 894).—**R. P. Smith** treated 72 cases by subcutaneous injection of normal saline or 4 per cent. dextrose saline. Sixty-five of these were grouped as intestinal, including marasmus or decomposition, acute intestinal intoxications and fermentative diarrhœa, and the rest were cases of pyloric stenosis or congenital syphilis. The total mortality was 58 per cent., but 16 were moribund on admission. The indications for injection were loss of tissue turgor and presence of dehydration. The immediate results were an increase in weight and an improvement in the tissue turgor and in the general condition. Smith reviews his literature, including the paper by Mackenzie in the British Journal of Children's Diseases, 1912, ix, *p.* 343.

J. D. Rolleston.

Normal horse-serum in bleeding from tooth socket (*'Dub. Journ. Med. Science,'* 1915, i, *p.* 95).—**J. T. Simpson** reports the case of a boy, aged 8 years, who had persistent hæmorrhage from a socket of a tooth, in the treatment of which perchloride of iron and adrenalin proved useless. He was given 10 c.c. of normal horse-serum subcutaneously, with excellent result. To prevent serum-sickness the author advises heating the serum to body heat prior to injection, whilst it is also claimed that the previous administration of calcium salts will diminish the onset of urticaria and other skin lesions.

J. Allan.

The use for decanted blood serum after severe hæmorrhage and in hæmophilia (*'Med. Record,'* 1915, lxxxvii, *p.* 647).—**A. Judd** used the following method in two cases with success. One was a baby aged 18 months, and the other an adult aged 19 years. The blood is drawn into a clean sterilised glass vessel and kept at blood heat. It is then placed on ice and protected by cotton from the air until the blood separates from the clot, which requires from one to twelve hours. The serum is then decanted and kept on ice till required.

F. R. B. Atkinson.

Turpentine as a hæmostatic (*'Lancet,'* 1915, ii, *p.* 226).—**G. G. Turner.**—A boy, aged 8 years, the subject of hæmophilia, came under observation because of severe and persistent hæmorrhage from a small wound of the palm, all ordinary measures having failed to staunch the bleeding. The author gave directions for turpentine to be used, but on the following day he was informed that the bleeding had not ceased. On investigating the matter he found that a piece of gauze had simply been soaked in turpentine and laid over the wound like an ordinary dressing. The only

result was a rather extensive blister. As the condition of the boy was alarming and the bleeding still continued, a graduated compress of lint soaked in turpentine was made and squeezed nearly dry. This was supported by a pad of wood-wool, and with a firm bandage fixed in position, and not disturbed for several days, with the result that there was no further hæmorrhage and no trouble from the blister. It is, therefore, most essential that the turpentine should be properly used. J. Allan.

The treatment of cervical lymphadenitis in children (*'Am. Journ. Obst.,'* 1915, lxxi, *p.* 356).—**J. Epstein** recommends liq. aluminii acetat. 8 per cent., one tablespoonful to half a glass of cold water. Gauze is soaked with this solution, the excess wrung out, and the moist gauze applied to the neck, covered with oiled silk, and changed every two or three hours.
F. R. B. Atkinson.

Treatment of recurrent sibilant bronchitis (*'Arch. of Ped.,'* 1914, xxxi, *p.* 488.—**B. K. Rachford** considers this condition is often brought about by food intoxication and is relieved by dietetic means. It is frequently present in children with a tendency to migraine, urticaria, and recurrent vomiting. Sweets, butter, fats, eggs, oranges, and all raw fruit should be eliminated from the diet, and bicarbonate of soda or other stomachic given internally. The bowels should be kept open. F. R B. Atkinson.

The treatment of hypertrophy of the thymus (*'Riv. di Clin. Pediat.,'* 1914, xii, *p.* 925).—**U. Franchetti** gives details of four cases and advocates the following procedure. In the treatment of hypertrophy of the thymus the functional condition of the gland must be carefully considered and the treatment should be eminently conservative. Surgical intervention should be reserved only for cases of extreme gravity which do not permit any other treatment. The method of choice in cases of moderate severity is X ray therapy, which must be conducted with much prudence, using the smallest doses necessary to obtain the disappearance of pressure symptoms, producing the smallest possible amount of involution of the organ. In slight cases a cure may be effected by more simple measures having for their object the elimination of concomitant catarrhal phenomena and the congested state of the thymus and neighbouring organs.
Vincent Dickinson.

Pineal gland in the treatment of certain classes of mentally defective children (*'Med. Record,'* 1914, lxxxv, *p.* 513).—**W. N. Berkeley** has based his use of pineal gland in children upon experiments on animals. In these he found that with the addition of gland substance to the diet the growth of the animal was considerably hastened. The children in whom he obtained the best results were mental defectives in the later years of childhood, in whom there were no physical stigmata. These appeal to him as possibly suffering only from some faulty cerebral chemistry, and he thinks it possible that the pineal gland exercises some influence upon this. In certain cases with this treatment he obtained a marked improvement in mental development as compared with control children. The pineal glands of young bullocks were used. They were rapidly dried, mixed with milk sugar and put up in capsules, each capsule corresponding to 150 lb. of (live) bullock-weight. One or two capsules a day were given, after meals. In no case was any harmful result observed. Reginald Miller.